

ABSTRACT

An aqueous polishing slurry is suitable for chemical mechanical polishing semiconductor substrates. The slurry comprises, by weight percent, 0.1 to 40 weight percent metal oxide particles, the metal oxide particles having a surface and a positive surface charge; at least 0.001 polynaphthalene surfactant for adsorption with at least a portion of the surface of the metal oxide particles in situ and for reducing scratching of the semiconductor substrates; and a balance of water with the slurry having a pH of less than 10.